



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,478	12/21/2005	Holger Fehrmann	2003P17943WOUS	8165
22116	7590	04/16/2008		
SIEMENS CORPORATION INTELLECTUAL PROPERTY DEPARTMENT 170 WOOD AVENUE SOUTH ISELIN, NJ 08830			EXAMINER PUENTE, EMERSON C	
			ART UNIT 2113	PAPER NUMBER
			MAIL DATE 04/16/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/561,478

Applicant(s)

FEHRMANN ET AL.

Examiner

Emerson C. Puente

Art Unit

2113

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 6/26/06 12/21/05
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claims 18-35 have been examined.

This action is made Non-Final.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 18-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 18-34 recites the limitation “configured to”. For instance, claim 1 recites “the branching unit configured to:”. The disclosure provides no support for a configuring operation. No configurable element or step is disclosed, nor are any parameters and ranges of configuration disclosed such that one of ordinary skill in the art would be able to accomplish “configuring” the elements claimed or determine the appropriate parameters which require “configuration”. Examiner suggests removing all “configured to” language set forth in all of the claims. For instance, amend the limitation “the branching unit configured to:” (see line 3 of claim 1) to “the branching unit to:”. For the purposes of evaluating the claims and their scope in light of the prior art they are being interpreted as if the action is actually being performed.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 18-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 18-34 recites the limitation "configured to". For instance, claim 1 recites "the branching unit configured to:". The "configured to" language present in the claims is indefinite in that the nature of what configuration operation intended to be covered by the claim language is not recited, nor are any parameters indicated for configuration. One of ordinary skill in the art looking at the claims would therefore not be able to clearly discern the metes and bounds of the claim such that a determination of whether, or not, a device may infringe the claim may be properly made. Examiner suggests removing all "configured to" language set forth in all of the claims. For instance, amend the limitation "the branching unit configured to:" (see line 3 of claim 1) to "the branching unit to:". For the purposes of evaluating the claims and their scope in light of the prior art they are being interpreted as if the action is actually being performed.

Furthermore, claim 18 recites the limitation "the first respectively second cable" in line 18 of claim. There is insufficient antecedent basis for this limitation in the claim. Examiner is uncertain whether applicant intended to recite "the first cable and the second cable, respectively" or "a first respectively second cable". Claims 19-25 are rejected for being dependent upon claim 18.

Claim 30 recites the limitation "the first respectively second cable" in line 18 of claim. There is insufficient antecedent basis for this limitation in the claim. Examiner is uncertain whether applicant intended to recite "the first cable and the second cable, respectively" or "a first respectively second cable".

Claim 32 recites the limitation "The redundancy manager ... comprising a plurality of branching unit" in lines 1-2 of claim. However, the specification fails to disclose the redundancy manager comprising a plurality of branching unit. Rather the specification discloses the redundancy manager and branching unit as different units (see figure item RM and T1-4 and page 6 paragraph 27).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 26-30 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent Application Publication 2003/0037272 of Flaschka et al. referred hereinafter "Flaschka".

Regarding claim 26, Flaschka discloses a branching unit for connecting a user device to a network having redundancy properties, the network comprising a line having two line ends connected to a redundancy manager of the network, the redundancy manager configured to disconnect the two line ends from each other in an error-free state of the line and to connect the two line ends to each other in an error state of the line, the branching unit comprising first and

second network connections for connecting first respectively second cable ends of the line to the branching unit, wherein the branching unit is configured to:

be arranged in the line by connecting the first and second cable ends to the first respectively second network connections (see figure 1 and page 1 paragraph 13)

check a state of a first cable connected to the first network connection via the first cable end if a supply voltage is received at the second network connection, check a state of a second cable connected to the second network connection via the second cable end if the supply voltage is received at the first network connection, and forward the supply voltage to the first respectively second cable only if the first respectively second cable has an error-free state. Flaschka discloses monitoring device discrepancy between the supply voltage on both sides of the partition and leaving the partition open if there no interruption (see page 1 paragraph 8-9).

Regarding claim 27, Flaschka in view of Schenkyr discloses the claim limitations as discussed above. Flaschka further discloses two switches (see figure 2 item 24 and 25 and page 2 paragraph 21) and a control unit, the two switches configured to be actuated by the control unit such that a user device connected to the branching unit can be selectively connected to the first or to the second network connection or to both the first and second network connections for maintaining power supply to the user device and for maintaining data transmission from the user device to the network (see figure 2 items 11,14 and page 2 paragraph 16).

Regarding claim 28, Flaschka in view of Schenkyr discloses the claim limitations as discussed above. Flaschka further discloses a resistor network including the two switches (see figure 2 item 24 and 25 and page 2 paragraph 21), wherein the switches are configured to be actuated by the control unit such that a current or a voltage related to the first or second cable

Art Unit: 2113

connected to the first respectively second network connection can be checked by the control unit (see figure 2 items 11,14 and page 2 paragraph 16).

Regarding claim 29, Flaschka in view of Schenkyr discloses the claim limitations as discussed above. Flaschka further discloses an energy accumulator configured to be charged by the supply voltage at least in the error-free state (see page 1 paragraph 13), wherein the branching unit is configured to measure a voltage present at the user device connected to the network via the branching unit and to connect the energy accumulator to the user device if the measured voltage corresponds to a voltage deficit (see page 2 paragraphs 14-15).

Regarding claim 30, Flaschka in view of Schenkyr discloses the claim limitations as discussed above. Flaschka further discloses wherein the first and second network connections are configured to be fixed in a predetermined electrical state for performing maintenance or repair work (see page 1 paragraph 9).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18,20-25,31,32, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flaschka in view of US Patent No. 5,218,600 of Schenkyr et al. referred hereinafter "Schenkyr".

Regarding claim 18, Flaschka discloses a network, comprising:

a manger to feed a supply voltage into one of the two line ends for supplying a user device connected to the network via the branching unit. Flaschka discloses supplying voltage to the bus stations (see page 1 paragraph 13)

at least one branching unit for connecting a user device to the network (see figure 1 items 2-6 and page 1 paragraph 13).

the branching unit is configured to check a state of the first cable if the supply voltage is received at the second network connection and to check a state of the second cable if the supply voltage is received at the first network connection and forward the supply voltage to the first respectively second cable only if the first respectively second cable has an error-free state. Flaschka discloses monitoring device discrepancy between the supply voltage on both sides of the partition and leaving the partition open if there no interruption (see page 1 paragraph 8-9).

However, Flaschka fails to explicitly disclose redundancy properties, comprising:

a line having two line ends, the two line ends connected to the redundancy manager, the redundancy manager configured to:

disconnect the two line ends from each other in an error-free state of the line, connect the two line ends in an error state of the line, and

feed a further supply voltage to the first line end if the supply voltage is fed to the second line end and is not detected at the first line end after lapse of a predetermined period of time by the redundancy manager and feed the further supply voltage to the second line end if the supply voltage is fed to the first line end and is not detected at the second line end after lapse of the predetermined period of time by the redundancy manager.

Schenkyr discloses two line ends in a network connected to a redundancy manager, the redundancy manager separates the two line ends from each other. Schenkyr further discloses if an error occur in the network, the redundancy manager connects the two line ends together (see column 2 lines 20-25 and 39-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Flaschka and Schenkyr to have a redundancy manager that connects two line ends together in case of an error so that all the connectors are still capable of exchanging data, thus indicating a line having two line ends, the two line ends connected to the redundancy manager, the redundancy manager configured to disconnect the two line ends from each other in an error-free state of the line, connect the two line ends in an error state of the line, and feed a further supply voltage to the first line end if the supply voltage is fed to the second line end and is not detected at the first line end after lapse of a predetermined period of time by the redundancy manager and feed the further supply voltage to the second line end if the supply voltage is fed to the first line end and is not detected at the second line end after lapse of the predetermined period of time by the redundancy manager. A person of ordinary skill in the art could have been motivated to combine the teachings because Flaschka is concerned with communication between stations (see page 1 paragraph 13), and having a redundancy manager that connects two line ends together in case of an error, as per teachings of Schenkyr, would enable the stations to continue communication in the case of an error (see column 6 lines 14-20).

Regarding claim 20, Flaschka in view of Schenkyr discloses the claim limitations as discussed above. Flaschka and Schenkyr further discloses wherein the redundancy manager

and the branching unit each include a termination element configured to be connected to the first or second line end if the redundancy manager or the branching unit are arranged at the first respectively second line end (see figure 1 item 10 and paragraph 14 of Flaschka and figure 5 item 56 and column 7 lines 24-25 of Schenkyr).

Regarding claim 21, Flaschka in view of Schenkyr discloses the claim limitations as discussed above. Flaschka further discloses wherein the branching unit comprises two switches (see figure 2 item 24 and 25 and page 2 paragraph 21) and a control unit, the two switches configured to be actuated by the control unit such that a user device connected to the branching unit can be selectively connected to the first or to the second network connection or to both the first and second network connections for maintaining power supply to the user device and for maintaining data transmission from the user device to the network (see figure 2 items 11,14 and page 2 paragraph 16).

Regarding claim 22, Flaschka in view of Schenkyr discloses the claim limitations as discussed above. Flaschka further discloses wherein the branching unit comprises a resistor network including the two switches (see figure 2 item 24 and 25 and page 2 paragraph 21), and the switches are configured to be actuated by the control unit such that a current or a voltage related to the first or second cable connected to the first respectively second network connection can be checked by the control unit (see figure 2 items 11,14 and page 2 paragraph 16).

Regarding claim 23, Flaschka in view of Schenkyr discloses the claim limitations as discussed above. Flaschka further discloses wherein the branching unit comprises an energy accumulator configured to be charged by the supply voltage at least in the error-free state (see page 1 paragraph 13), and the branching unit is configured to measure a voltage present at the

Art Unit: 2113

user device connected to the network via the branching unit and to connect the energy accumulator to the user device if the measured voltage corresponds to a voltage deficit (see page 2 paragraphs 14-15).

Regarding claim 24, Flaschka in view of Schenkyr discloses the claim limitations as discussed above. Flaschka further discloses a plurality of branching units, wherein the redundancy manager includes a recording unit for recording the timely behaviour of a voltage or a current related to the supply voltage at the first or second line end during forwarding of the supply voltage by any of the branching units and for determining the number of branching units fed by the supply voltage up to a physical error location (see figure 1 and page 1-2 paragraphs 14-15).

Regarding claim 25, Flaschka in view of Schenkyr discloses the claim limitations as discussed above. Flaschka further discloses wherein the redundancy manager includes a further recording unit for recording changes of a voltage or a related to the supply voltage at the first or second line end and for determining a state transition of the network (see figure 1 and page 1-2 paragraphs 14-15).

Regarding claim 31, Flaschka discloses a manager for a network, the network having a line including first and second line ends, the first and second line ends connected to the manager the manager configured to:

feed a supply voltage into the first or second line end for supplying a user device connected to the network via a branching unit. Flaschka discloses supplying voltage to the bus stations (see page 1 paragraph 13).

However, Flaschka fails to explicitly disclose:

a redundancy manager configured to disconnect the first and second line ends from each other in an error-free state of the line and connect the first and second line ends in an error state of the line;

feed a further supply voltage to the first line end if the supply voltage is fed to the second line end and is not detected at the first line end after lapse of a predetermined period of time by the redundancy manager and feed the further supply voltage to the second line end if the supply voltage is fed to the first line end and is not detected at the second line end after lapse of the predetermined period of time by the redundancy manager.

Schenkyr discloses two line ends in a network connected to a redundancy manager, the redundancy manager separates the two line ends from each other. Schenkyr further discloses if an error occur in the network, the redundancy manager connects the two line ends together (see column 2 lines 20-25 and 39-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Flaschka and Schenkyr to have a redundancy manager that connects two line ends together in case of an error so that all the connectors are still capable of exchanging data, thus indicating a redundancy manager configured to disconnect the first and second line ends from each other in an error-free state of the line and connect the first and second line ends in an error state of the line and feed a further supply voltage to the first line end if the supply voltage is fed to the second line end and is not detected at the first line end after lapse of a predetermined period of time by the redundancy manager and feed the further supply voltage to the second line end if the supply voltage is fed to the first line end and is not

detected at the second line end after lapse of the predetermined period of time by the redundancy manager. A person of ordinary skill in the art could have been motivated to combine the teachings because Flaschka is concerned with communication between stations (see page 1 paragraph 13), and having a redundancy manager that connects two line ends together in case of an error, as per teachings of Schenkyr, would enable the stations to continue communication in the case of an error (see column 6 lines 14-20).

Regarding claim 32, Flaschka in view of Schenkyr discloses the claim limitations as discussed above. Flaschka further discloses a plurality of branching units and a recording unit for recording the timely behaviour of a voltage or a current related to the supply voltage at the first or second line end during forwarding of the supply voltage by any of the branching units and for determining the number of branching units fed by the supply voltage up to a physical error location (see figure 1 and page 1-2 paragraphs 14-15).

Regarding claim 35, Flaschka discloses a method of operating a network, the network comprising a line having first and second line ends connected, the method comprising:

feed a supply voltage into the first or second line end for supplying a user device connected to the network via a branching unit. Flaschka discloses supplying voltage to the bus stations (see page 1 paragraph 13)

However, Flaschka fails to explicitly disclose redundancy properties, comprising:

disconnecting the first and second line ends from each other in an error-free state of the line and connecting the first and second line ends in an error state of the line;

feed a further supply voltage to the first line end if the supply voltage is fed to the second line end and is not detected at the first line end after lapse of a predetermined period of time by the redundancy manager and feed the further supply voltage to the second line end if the supply voltage is fed to the first line end and is not detected at the second line end after lapse of the predetermined period of time by the redundancy manager.

Schenkyr discloses two line ends in a network connected to a redundancy manager, the redundancy manager separates the two line ends from each other. Schenkyr further discloses if an error occur in the network, the redundancy manager connects the two line ends together (see column 2 lines 20-25 and 39-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Flaschka and Schenkyr to have a redundancy manager that connects two line ends together in case of an error so that all the connectors are still capable of exchanging data, thus indicating disconnecting the first and second line ends from each other in an error-free state of the line and connecting the first and second line ends in an error state of the line, as well as feed a further supply voltage to the first line end if the supply voltage is fed to the second line end and is not detected at the first line end after lapse of a predetermined period of time by the redundancy manager and feed the further supply voltage to the second line end if the supply voltage is fed to the first line end and is not detected at the second line end after lapse of the predetermined period of time by the redundancy manager. A person of ordinary skill in the art could have been motivated to combine the teachings because Flaschka is concerned with communication between stations (see page 1 paragraph 13), and having a redundancy manager that connects two line ends together in case of an error, as per teachings of

Art Unit: 2113

Schenkyr, would enable the stations to continue communication in the case of an error (see column 6 lines 14-20).

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Flaschka in view of Schenkyr and in further view of US Patent No. 6,260,004 of Hays et al. referred hereinafter "Mays".

Regarding claim 19, Flaschka in view of Schenkyr discloses the claim limitations as discussed above. However, Flaschka in view of Schenkyr fails to explicitly disclose:

wherein the network is a PROFIBUS PA network.

Hays discloses PROFIBUS PA as a well known communication protocol (see column 7 lines 50-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Flaschka, Schenkyr, and Hays for the bus system to use PROFIBUS PA as the communication protocol, thus indicating a PROFIBUS PA network. A person of ordinary skill in the art could have been motivated to combine the teachings because Flaschka is concerned with communicating between stations (see page 1 paragraph 13), and PROFIBUS PA constitutes a well known communication protocol (see column 7 lines 50-55), thus enabling communication between the stations.

Claims 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flaschka in view of Schenkyr and in further view of US Patent No. 6,965,560 of Ying et al. referred hereinafter "Ying".

Regarding claim 33, Flaschka in view of Schenkyr discloses the claim limitations as discussed above. However, Flaschka in view of Schenkyr fails to explicitly disclose:

a communication interface for connecting the redundancy manager to a higher-ranking network and for exchanging data with the higher-ranking network.

Ying discloses it is well known to have a loop or ring network part of a multi-tier network with redundant connections (see figure 23 and page 29 paragraph 28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Flaschka, Schenkyr, and Ying wherein the ring network as disclosed in Flaschka, in part of a multi-tier network with redundant connections. A person of ordinary skill in the art could have been motivated to combine the teachings because Flaschka disclose a ring network (see figure 1 and column 2 lines 43-48) and Ying discloses it is well known to have a ring network part of a multi-tier network and teachings within a single ring network are applicable to multi-tier network (see column 27 lines 15-20). Furthermore, having the device in a multi-tier network, as per teachings of Ying (see figure 23 and column 28 lines 13-30) enables one to create a hierarchical structure that would enable nodes to communicate with higher tier devices (see column 28 lines 25-30).

Regarding claim 34, Flaschka in view of Schenkyr and Ming discloses the claim limitations as discussed above. Ying further discloses at least two segment couplers for connecting the redundancy manager to at least two communication channels of the higher-ranking network, the higher-ranking network embodied as a redundant network, wherein the redundancy manager is configured to: monitor a functionality of the at least two segment couplers and select one of the segment couplers for connecting the redundancy manager to

the network having redundancy properties (see column 28 lines 25-30 and 60-65).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emerson C. Puente whose telephone number is 571-272-3652. The examiner can normally be reached on 9-6 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on 571-272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Emerson C Puente/
Primary Examiner, Art Unit 2113

